

Table 2–32. Summary and Comparison of Impacts

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
<b>GEOLOGY AND SOILS</b>	No seismic potential.		No seismic potential.			No seismic potential.
	Potential for subsidence and incision.		No stability hazards present.		Potential for minor geologic instabilities in areas surrounding site.	Potential for subsidence and incision.
	Sand and gravel resources below site could be unavailable for exploitation because of previous mill contamination.		Geological resources available are too deep for exploitation.		Some potential for oil deposits at deep depths; other resources too deep or sparse for exploitation.	Sand and gravel resources beneath the Moab site would remain contaminated.
	1.8 million yd <sup>3</sup> of soil and other borrow materials would be removed from borrow areas for use at the Moab site.		2.2 million yd <sup>3</sup> of soil and other borrow materials would be removed from borrow areas for use at the disposal cell site or Moab site.			No new materials would be committed to the Moab site.
	Excavation of 234,000 tons (173,000 yd <sup>3</sup> ) of contaminated site soil and backfilling with clean reclamation borrow soil to a depth of approximately 6 inches would result in a short-term increase in potential for soil erosion.		<p>Excavation of 234,000 tons (173,000 yd<sup>3</sup>) of contaminated site soil and backfilling with clean reclamation borrow soil to a depth of approximately 6 inches would result in a short-term increase in potential for soil erosion.</p> <p>Excavation and removal of the tailings pile and an estimated 2 feet of contaminated subpile soil and backfilling with clean reclamation borrow soil to a depth of approximately 6 inches would result in short-term increase in potential for soil erosion.</p> <p>Excavation and construction of the disposal cell, access roads, and support facilities would result in short-term increase in potential for soil erosion.</p>			No excavation.

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GEOLOGY AND SOILS (cont).		Pipeline	Excavation and construction for emplacement and removal of slurry pipeline would disturb topsoil and result in short-term increase in potential for soil erosion along a pipeline corridor approximately 19 miles long.	Excavation and construction for emplacement and removal of slurry pipeline would disturb topsoil and result in short-term increase in potential for soil erosion along a pipeline corridor approximately 34 miles long.	Excavation and construction for emplacement and removal of slurry pipeline would disturb topsoil and result in short-term increase in potential for soil erosion along a pipeline corridor approximately 89 miles long.	
AIR QUALITY	PM <sub>10</sub> (see definition in Chapter 10) emissions would require dust control measures.	Truck, rail, and pipeline	PM <sub>10</sub> emissions would require dust control measures.			PM <sub>10</sub> emissions from dust would likely exceed standards.
	Vehicle emissions would not exceed NAAQS.		Vehicle emissions would not exceed NAAQS.			No emissions.
	Prevention of significant deterioration (PSD) increment limits would not be exceeded.		PSD increment limits would not be exceeded.			
	Air emissions from technologies evaluated for ground water remediation would not exceed health standards for workers or the public.		Air emissions from technologies evaluated for ground water remediation would not exceed health standards for workers or the public.			

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GROUND WATER	Moab site ground water would remain contaminated in perpetuity, but supplemental standards would provide protection of human health.	N/A	Moab site ground water would remain contaminated for 150 more years, but supplemental standards would provide protection of human health.			Moab site ground water would remain contaminated in perpetuity and would not be protective of human health.
	Off-site disposal would eliminate the potential for tailings subsidence into Moab site ground water.			Natural subsidence would result in permanent tailings contact with the ground water in 7,000 to 10,000 years.		
	Additional contamination from the ammonia salt layer could reach ground water within 1,100 years and could continue until 1,540 years from the present, even after completion of ground water remediation.		Travel time to underlying ground water 25,000 years.	Travel time to underlying ground water 170,000 years.	Travel time to point of exposure at surface springs 3,570 to 7,690 years.	Additional contamination from the ammonia salt layer could reach ground water within 170 years and continue until 220 years from the present.
SURFACE WATER	Colorado River flood would release additional contamination to ground water and surface water.	N/A	No potential flood events to release contaminants.			Colorado River flood event could release additional contamination to ground water and surface water.
	Active ground water remediation at the Moab site required for 75 years to meet aquatic standards in the Colorado River.			Discharge of ground water would continue to exceed standards for protection of aquatic species in the Colorado River.		
	No potential to affect surface water.					

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FLOODPLAINS AND WETLANDS	100- and 500-year flood events would partially inundate toe of disposal cell, possibly resulting in additional release of contaminants.	See below	Site is not within a floodplain.			100- and 500-year flood events would partially inundate toe of disposal cell, resulting in additional release of contaminants.
	Wetlands could be contaminated in the long term.		No known wetlands are present.		Wetlands may be affected by construction.	Wetlands could be contaminated for the long term.
	Wetland areas at the Moab site adjacent to the river would be temporarily adversely affected by surface remediation.		Wetland areas at the Moab site adjacent to the river would be temporarily adversely affected by surface remediation.			Wetland areas on site would continue to be affected by surface and ground water contamination.
	Ground water remediation at the Moab site would occur within the 100- and 500-year floodplains for 80 years; surface actions would occur for less time.		Ground water remediation at the Moab site would occur within the 100- and 500-year floodplains for 75 years; surface actions would occur for less time.			No remediation actions would occur within the 100- and 500-year floodplains.
	Truck	No impacts to floodplains or wetlands expected.				
	Rail	No impacts to floodplains or wetlands expected.		N/A		
	Pipeline	No impacts to floodplains or wetlands expected.		Would cross the Colorado River, Matheson Wetlands Preserve, and many intermittent and perennial streams.		

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AQUATIC ECOLOGY	Potential impact at the Moab site to Colorado River aquatic species eliminated within 5 years after implementation of active ground water remediation.	See below	Potential impact at Moab site to Colorado River aquatic species eliminated within 5 years after implementation of active ground water remediation.			Potential impacts to aquatic species from releases of contaminants would continue for at least the next 100 years.
	No aquatic resources present.					
	Surface remediation at the Moab site could temporarily disturb up to 8,100 ft of Colorado River shoreline and affect aquatic species.					
	Surface remediation at Moab could temporarily disturb up to 8,100 ft of Colorado River shoreline and affect aquatic species.		No potential for future impacts to the Colorado River aquatic species from future releases from salt layer.			Potential impact to the Colorado River aquatic species from future releases from salt layer beginning in 170 years and continuing until 220 years from the present.
	Potential impact to Colorado River aquatic species from future releases from salt layer beginning in 1,100 years and continuing until 1,540 years from the present.	Truck	Up to 240 acre-feet of water withdrawn from the Colorado River annually would exceed the 100 acre-foot annual limit established by USF&WS as protective of aquatic species. Impact mitigated by negotiated water depletion payments.			No water withdrawals would occur from the Colorado River
	Water withdrawal from the Colorado River would be less than the 100 acre-feet per year deemed by USF&WS to be protective of aquatic species.	Rail	Up to 235 acre-feet of water withdrawn from the Colorado River annually would exceed the 100 acre-foot annual limit established by USF&WS as protective of aquatic species. Impact mitigated by negotiated water depletion payments.		N/A	
		Pipeline	Up to 730 acre-feet of water assumed withdrawn from the Colorado River annually would exceed the 100 acre-foot annual limit established by USF&WS as protective of aquatic species. Impact mitigated by negotiated water depletion payments.			

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TERRESTRIAL ECOLOGY	Surface remediation would cause the temporary loss of existing vegetation and habitat on 50 acres at the Moab site.	See below	Surface remediation would cause the temporary loss of existing vegetation and habitat on 50 acres at the Moab site.			No additional land disturbance.
	Up to 439 acres of short-term disturbance at the Moab site for disposal cell area and site remediation, but vegetation is sparse and provides poor habitat.		Up to 439 acres of short-term disturbance at the Moab site from remediation.			Animal intrusion into the pile could result in acute and/or chronic toxic effects to wildlife.
	Up to 6 acres disturbance at vicinity properties.		Up to 6 acres disturbance at vicinity properties.			
	Up to 550 acres disturbance at borrow areas.		Up to 690 acres disturbance at borrow areas.			
	Up to 995 acres total short-term land disturbance.		Up to 435 acres of short-term disturbance for disposal cell area, but vegetation is sparse and provides poor habitat.		Up to 346 acres of short-term disturbance	
	Revegetation would minimize impact over the longer term.		Revegetation would minimize impact over the longer term.			
Potential affect to endangered southwestern willow flycatcher and candidate yellow-billed cuckoo.		Potential to affect endangered black-footed ferret and bald eagle, which would be mitigated by avoidance or other measures.	Potential to affect the Gunnison sage grouse, Navajo sedge, Mexican spotted owl, and bald eagle, which would be mitigated by avoidance or other measures.	Federal- or state-listed species could be exposed to contaminants through ingestion of prey and water, incidental soil ingestion, inhalation, and dermal uptake.		

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<b>TERRESTRIAL ECOLOGY (cont.)</b>	Small increase in wildlife fatalities (deer, pronghorn antelope, bighorn sheep).	Truck	Significant increase in traffic would lead to an increase in wildlife fatalities.		Significant increase in traffic would lead to an increase in wildlife fatalities.	No potential to impact wildlife from increased traffic.
	Mexican spotted owl could be affected by increase in traffic noise.				Truck route crosses migration routes for mule deer and critical range for pronghorn antelope and is in Gunnison sage grouse conservation area.	
					Up to 2 acres disturbed for transportation infrastructure.	
		Rail	Up to 40 acres disturbed for transportation infrastructure	Up to 13 acres disturbed for transportation infrastructure.	Up to 967 acres total short-term land disturbance (all areas)	
			Up to 1,610 acres total short-term land disturbance (all areas)	Up to 1,583 acres total short-term land disturbance (all areas)		
			Intermittent noise and ground vibration could disturb wildlife.		N/A	
			Up to 69 acres disturbed for transportation infrastructure.	Up to 57 acres disturbed for transportation infrastructure.	N/A	
			Up to 1,624 acres total short-term land disturbance (all areas)	Up to 1,612 acres total short-term land disturbance (all areas)		
			Some habitat disturbance, but much is already disturbed.		N/A	

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TERRESTRIAL ECOLOGY (cont.)		Pipeline	Construction could disturb Mexican spotted owl, white-tailed prairie dog, black-footed ferret, ground-nesting migratory birds.		Construction could disturb Navajo sedge, black-footed ferret, Mexican spotted owl, and southwestern willow flycatcher.	
			Up to 109 acres disturbed for transportation infrastructure.	Up to 175 acres disturbed for transportation infrastructure.	Up to 430 acres disturbed for transportation infrastructure.	
			Up to 1,679 acres total short-term land disturbance (all areas)	Up to 1,745 acres total short-term land disturbance (all areas)	Up to 1,395 acres total short-term land disturbance (all areas)	
LAND USE	DOE control of the Moab site would continue in perpetuity.  439 acres disturbed on Moab site remain unavailable for other uses in perpetuity.  Short-term land use disturbance to up to 550 acres at borrow areas.	See below	DOE use of the Moab site would continue for at least 75 years for ground water remediation activities.			Uncontrolled access to the site could result in unacceptable uses.
		Truck	Short-term land use disturbance to up to 1,610 acres at Klondike Flats, borrow areas, and for transportation	Short-term land use disturbance to up to 1,583 acres at Crescent Junction, borrow areas, and for transportation	Short-term land use disturbance to up to 967 acres at White Mesa Mill, borrow areas, and for transportation	
			Up to 435 acres of undisturbed BLM rangeland committed to disposal cell unavailable for other uses in perpetuity.  Loss of grazing rights, loss of potential oil, gas, and mineral extraction in perpetuity.  Permanent access road required for cell inspection and maintenance.		Private land, no potential for impacts to grazing or mineral extraction.	



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LAND USE (cont.)		Rail	Short-term land use disturbance to up to 1,624 acres at Klondike Flats, borrow areas, and for transportation	Short-term land use disturbance to up to 1,612 acres at Crescent Junction, borrow areas, and for transportation	N/A	
			Up to 420 acres of undisturbed BLM rangeland committed to disposal cell unavailable for other uses in perpetuity.  Loss of grazing rights, loss of potential oil, gas, and mineral extraction in perpetuity.  Permanent access road required for cell inspection and maintenance.		N/A	
		Pipeline	Short-term land use disturbance to up to 1,679 acres at Klondike Flats, borrow areas, and for transportation	Short-term land use disturbance to up to 1,745 acres at Crescent Junction, borrow areas, and for transportation	Short-term land use disturbance to up to 1,395 acres at White Mesa Mill, borrow areas, and for transportation	
			Up to 435 acres of undisturbed BLM rangeland committed to disposal cell unavailable for other uses in perpetuity.	Up to 420 acres of undisturbed BLM rangeland committed to disposal cell unavailable for other uses in perpetuity.	Up to 346 acres committed for disposal cell within IUC land previously committed to RRM disposal.	
			Permanent access road required for cell inspection and maintenance.			
			Loss of grazing rights, loss of potential oil, gas, and mineral extraction in perpetuity.		Site converts to DOE ownership upon termination of IUC license under all alternatives.	

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<b>CULTURAL RESOURCES</b>	4 to 11 cultural sites could be adversely affected at Moab site and borrow areas. Potential for traditional cultural properties is low.	See below	15 to 32 cultural sites could be adversely affected at Moab site, Klondike Flats site, and borrow areas. Potential for traditional cultural properties is low to medium.	4 to 11 cultural sites could be adversely affected at Moab site, Crescent Junction site, and borrow areas. Potential for traditional cultural properties is low.	13 to 21 cultural sites and 10 traditional cultural properties could be adversely affected at White Mesa Mill site, Moab site, and borrow areas. Mitigation for effects on traditional cultural properties would be extremely difficult and would involve numerous tribal entities.	No known cultural sites or traditional cultural properties would be disturbed.
		Truck	1 to 4 additional cultural sites could be adversely affected. Potential for traditional cultural properties is low.	1 additional cultural site could be adversely affected. Potential for traditional cultural properties is low.	1 additional cultural site could be adversely affected. Potential for traditional cultural properties is extremely high.	
		Rail	0 to 3 additional cultural sites could be adversely affected. Potential for traditional cultural properties is low.	No additional cultural sites would be adversely affected. Potential for traditional cultural properties is low.	N/A	
		Pipeline	6 to 21 additional cultural sites could be adversely affected. Potential for traditional cultural properties is medium to high.	11 to 25 additional cultural sites could be adversely affected. Potential for traditional cultural properties is low to high.	50 to 100 cultural sites and at least one known traditional cultural property could be adversely affected. Potential for additional traditional cultural properties is extremely high. Mitigation for effects on traditional cultural properties would be extremely difficult and would involve numerous tribal entities.	

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NOISE AND VIBRATION	Noise generated on the site would not exceed standard of 65 dBA at any receptor locations.	See below	Noise generated would not exceed 65 dBA at any receptor locations.			No additional noise or vibration would be generated.
	Small vibrations from activities at the Moab site or from truck transport could be felt near boundary of Arches National Park.		Small vibrations from activities at the Moab site, from truck or rail transport or from pipeline installation could be felt near boundary of Arches National Park.			
	Vicinity property remediation would cause temporary increase in local noise levels; noise standard could be violated within 820 ft of activity.		Vicinity property remediation would cause temporary increase in local noise levels; noise standard could be violated within 820 ft of activity.			
	Truck	No permanent residences would be affected by increase in traffic noise.	A few permanent residences could be affected by increase in traffic noise.	Residents are likely to be disturbed from tailings trucks passing through Moab, La Sal Junction, Monticello, and Blanding.		
	Rail	No residences would be affected by increase in rail noise.		N/A		
	Pipeline	No residences would be affected by operational noise.				
		Construction noise would cause short-term impacts at entrance to Arches National Park and along route.		Construction noise would cause short-term impacts along route.		
VISUAL RESOURCES	Strong to moderate adverse impacts. Visual contrasts would not be compatible with Class II objectives assigned by BLM to nearby landscapes.	See below	Strong positive impacts at the Moab site.			Moderate adverse impacts. Visual contrasts would not be compatible with Class II objectives assigned by BLM to nearby landscapes.
			Negligible to no adverse impacts.	Weak to strong adverse impacts, depending on viewing location.	Negligible to no adverse impacts.	
		Truck	Negligible to strong adverse impacts, depending on viewing location.	Negligible to moderate adverse impacts.	No adverse impacts.	
		Rail	Strong adverse impacts on Blue Hills Road.	Negligible to moderate adverse impacts.	N/A	
		Pipeline	Moderate adverse impacts to viewers on US-191.			

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INFRASTRUCTURE AND RESOURCE REQUIREMENTS	600 kVA electricity demand would not exceed local capacity.	See below	600–3,400 kVA electricity demand at Moab site would not exceed local capacity.	600–4,800 kVA electricity demand at Moab site would not exceed local capacity.	600–6,100 kVA electricity demand at Moab site would not exceed local capacity.	No additional requirements for energy, water, or sewage treatment.
	4,200 gallons of potable water per day; available from Moab.		300–2,500 kVA electricity demand at Klondike Flats site would not exceed local capacity.	300–2,800 kVA electricity demand at Crescent Junction site would not exceed local capacity.	300–3,100 kVA electricity demand at White Mesa Mill site would not exceed local capacity.	
	Up to 70 acre-feet of nonpotable water annually (490 acre-feet total); available from DOE's Colorado River water rights.	Truck	9,000 gallons of potable water per day available from Moab.		9,000 gallons of potable water per day available from existing deep wells at White Mesa Mill site.	
	10,000 gallons of sanitary waste per week; would not exceed Moab treatment plant capacity.		Up to 240 acre-feet of nonpotable water annually (775 acre-feet total); available from DOE's Colorado River water rights.		Up to 240 acre-feet of nonpotable water annually (775 acre-feet total); available from DOE's Colorado River and IUC's Recapture Reservoir water rights.	
	Up to 5 million gallons of diesel fuel.		21,000 gallons of sanitary waste per week would not exceed Moab treatment plant capacity.		21,000 gallons of sanitary waste per week could be met by IUC site and Blanding treatment plant capacity.	
			Approximately 11.7 million gallons of diesel fuel.	Approximately 13.6 million gallons of diesel fuel.	Approximately 20.2 million gallons of diesel fuel.	

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INFRASTRUCTURE AND RESOURCE REQUIREMENTS (cont.)		Rail	7,500 gallons of potable water per day available from Moab.		N/A	
			Up to 235 acre-feet of nonpotable water annually (710 acre-feet total); available from DOE's Colorado River water rights.		N/A	
			15,000 gallons of sanitary waste per week would not exceed Moab treatment plant capacity.		N/A	
			Approximately 10.3 million gallons of diesel fuel.	Approximately 10.9 million gallons of diesel fuel.	N/A	
		Pipeline	6,600 gallons of potable water per day available from Moab.		6,600 gallons of potable water per day available from existing deep wells at White Mesa Mill site.	
			Up to 730 acre-feet of nonpotable water annually (3,470 acre-feet total); available from DOE's Colorado River water rights.		Up to 730 acre-feet of nonpotable water annually (3,470 acre-feet total); available from DOE's Colorado River and IUC's Recapture Reservoir water rights.	
			15,400 gallons of sanitary waste per week would not exceed Moab treatment plant capacity.		15,400 gallons of sanitary waste per week could be met by IUC site and Blanding treatment plant capacity.	
			Approximately 9.0 million gallons of diesel fuel.		Approximately 7.3 million gallons of diesel fuel.	
			No booster pump station required.		4,800-kVA demand for pipeline booster pump under pipeline option would require: about 3 miles of new transmission lines for booster pump station and upgrade of existing lines.	

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WASTE MANAGEMENT	1,040 yd <sup>3</sup> solid waste generated annually during surface remediation; adequate capacity in local landfill.	N/A	1,040 yd <sup>3</sup> solid waste generated annually; adequate capacity in local landfill.		1,040 yd <sup>3</sup> solid waste generated annually; adequate capacity in local landfill or disposal cell.	No additional solid waste would be generated.
	6,600 tons RRM waste generated annually during 80-year Moab site ground water remediation; disposal in licensed facility.					
SOCIOECONOMICS	Increased workforce would tend to cause some crowding-out impacts in hotels, apartments, and campgrounds during peak tourism season, but lower vacancy rates would be expected during the off-season as workers took up temporary accommodation in the two-county region of influence.	See below	Increased workforce would tend to cause some crowding-out impacts in hotels, apartments, and campgrounds during the peak tourism season, but lower vacancy rates would be expected during the off-season as workers took up temporary accommodation in the two-county region of influence.		Because sufficient housing and lodging are available, an increased workforce would not cause crowding-out effects.	There would be no increase in the workforce to affect housing. Potential loss of 3–4 jobs.
	Annual cost: \$20.7 million.	Truck	Annual cost: \$41.3 million.	Annual cost: \$41.7 million.	Annual cost: \$52.5 million.	Annual cost: \$0.
	Annual output of goods and services: \$27.3 million.		Annual output of goods and services: \$54.6 million.	Annual output of goods and services: \$55 million.	Annual output of goods and services: \$69.2 million.	Annual output of goods and services: \$0.
	Annual labor earnings: \$6.7 million.		Annual labor earnings: \$13.4 million.	Annual labor earnings: \$13.6 million.	Annual labor earnings: \$17.1 million.	Annual labor earnings: \$0.
	171 direct and indirect jobs.		391 direct and indirect jobs during surface remediation.	431 direct and indirect jobs during surface remediation.	598 direct and indirect jobs during surface remediation.	No additional jobs.

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SOCIOECONOMICS (cont.)		Rail	Annual cost: \$49 million.	Annual cost: \$49.4 million.	N/A	
			Annual output of goods and services: \$64.7million.	Annual output of goods and services: \$65.1 million.	N/A	
			Annual labor earnings: \$15.9 million.	Annual labor earnings: \$16.1 million.	N/A	
			315 direct and indirect jobs during surface remediation.	335 direct and indirect jobs during surface remediation.	N/A	
		Pipeline	Annual cost: \$49.4 million.	Annual cost: \$50.3 million.	Annual cost: \$58.2 million.	
			Annual output of goods and services: \$65.1 million.	Annual output of goods and services: \$66.2 million.	Annual output of goods and services: \$76.7 million.	
			Annual labor earnings: \$16.1 million (year 1), \$15.1 million (years 2–8).	Annual labor earnings: \$16.3 million (year 1), \$15.1 million (years 2–8).	Annual labor earnings: \$18.9 million (year 1), \$15.3 million (years 2–8).	
			335 direct and indirect jobs (year 1), 315 (years 2–8).	458 direct and indirect jobs (year 1), 315 (years 2–8).	778 direct and indirect jobs (year 1), 320 (years 2–8).	

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<b>HUMAN HEALTH</b>	<p>Individual risk at unremediated vicinity properties <math>1.9 \times 10^{-3}</math> latent cancer fatalities (LCF) per year.</p> <p>Individual risk at remediated vicinity properties <math>6.6 \times 10^{-4}</math> LCF per year.</p> <p>Individual risk of 0.029 LCF at vicinity properties over 35 years, pre- and post-remediation.</p>	See below	<p>Individual risk at unremediated vicinity properties <math>1.9 \times 10^{-3}</math> LCF per year.</p> <p>Individual risk at remediated vicinity properties <math>6.6 \times 10^{-4}</math> LCF per year.</p> <p>Individual risk of 0.029 LCF at vicinity properties over 35 years, pre- and post-remediation.</p>			<p>Individual risk at contaminated vicinity properties <math>1.9 \times 10^{-3}</math> LCF per year.</p> <p>Individual risk of 0.067 LCF at vicinity properties over 35 years.</p>
	<p>Before remediation of vicinity properties, population risk of 0.76 LCF per year, or 3.8 LCF over 5 years.</p> <p>Population risk at remediated vicinity properties 0.26 LCF per year.</p> <p>Population risk at remediated vicinity properties 7.8 LCF over 30 years post-remediation period.</p> <p>Population risk of 12 LCF over 35 years, pre- and post-remediation.</p>		<p>Before remediation of vicinity properties, population risk of 0.76 LCF per year, or 3.8 LCF over 5 years.</p> <p>Population risk at remediated vicinity properties 0.26 LCF per year.</p> <p>Population risk at remediated vicinity properties 7.8 LCF over 30 years post-remediation period.</p> <p>Population risk of 12 LCF over 35 years, pre- and post-remediation.</p>			<p>Population risk at contaminated vicinity properties 0.76 LCF per year.</p> <p>Population risk at contaminated vicinity properties 26 LCF over 35-year period.</p>



Table 2–32. Summary and Comparison of Impacts (continued)

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
<b>HUMAN HEALTH (cont.)</b>	<p>Population risk 0.080 LCF during operations.</p> <p>Population risk 0.18 LCF over 30 years after operations.</p> <p>Individual risk of 0.026 LCF at vicinity properties over 35 years, during operations and after operations.</p>	Truck	<p>Population risk 1.0 LCF at Moab, and 0.011 LCF at Klondike Flats during operations.</p> <p>Population risk <math>2.8 \times 10^{-3}</math> LCF over 30 years at Klondike Flats after operations.</p> <p>Population risk of 0.014 LCF at Klondike Flats over 35 years, during operations and after operations.</p>	<p>Population risk 1.0 LCF at Moab, <math>8.3 \times 10^{-3}</math> LCF at Crescent Junction during operations.</p> <p>Population risk <math>2.0 \times 10^{-3}</math> LCF over 30 years at Crescent Junction after operations.</p> <p>Population risk of 0.010 LCF at Crescent Junction over 35 years, during operations and after operations.</p>	<p>Population risk 1.0 LCF at Moab, 0.012 LCF at White Mesa Mill during operations.</p> <p>Population risk <math>3.0 \times 10^{-3}</math> LCF over 30 years at White Mesa Mill after operations.</p> <p>Population risk of 0.015 LCF at White Mesa over 35 years, during operations and after operations.</p>	Population risk 5.2 LCF over 35 years at Moab.
	<p>Maximally exposed individual member of the public <math>1.2 \times 10^{-3}</math> LCF during operations.</p> <p>Maximally exposed individual member of the public <math>2.7 \times 10^{-3}</math> LCF over 30 years after operations.</p> <p>Individual risk of <math>3.9 \times 10^{-3}</math> LCF over 35 years, during operations and after operations.</p>		<p>Maximally exposed individual member of the public <math>8.8 \times 10^{-3}</math> LCF at Moab,</p> <p><math>1.8 \times 10^{-5}</math> LCF at Klondike Flats during operations.</p> <p>Maximally exposed individual member of the public <math>4.4 \times 10^{-6}</math> LCF over 30 years at Klondike Flats after operations.</p> <p>Individual risk of <math>2.2 \times 10^{-5}</math> over 35 years at Klondike Flats, during operations and after operations.</p>	<p>Maximally exposed individual member of the public <math>8.8 \times 10^{-3}</math> LCF at Moab,</p> <p><math>7.5 \times 10^{-5}</math> LCF at Crescent Junction during operations.</p> <p>Maximally exposed individual member of the public <math>1.8 \times 10^{-5}</math> LCF over 30 years at Crescent Junction after operations.</p> <p>Individual risk of <math>9.4 \times 10^{-5}</math> over 35 years at Crescent Junction, during operations and after operations.</p>	<p>Maximally exposed individual member of the public <math>8.8 \times 10^{-3}</math> LCF at Moab,</p> <p><math>7.8 \times 10^{-6}</math> LCF at White Mesa Mill during operations.</p> <p>Maximally exposed individual member of the public <math>1.9 \times 10^{-6}</math> LCF over 30 years at White Mesa Mill after operations.</p> <p>Individual risk of <math>9.7 \times 10^{-6}</math> over 35 years at White Mesa, during operations and after operations.</p>	Maximally exposed individual member of the public 0.048 LCF over 35 years at Moab.

Table 2–32. Summary and Comparison of Impacts (continued)

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
HUMAN HEALTH (cont.)	Construction-related fatalities among workers: 0.16 fatality.	Truck (cont.)	Construction-related fatalities among workers: 0.38 fatality.			
	Annual worker risk 0.067 LCF per year.		Annual worker risk 0.18 LCF per year.			
	Total worker risk 0.31 LCF.		Total worker risk: 0.85 LCF.			
	Total transportation fatalities from all sources: 0.084.		Total transportation fatalities from all sources: 0.35.	Total transportation fatalities from all sources: 0.49.	Total transportation fatalities from all sources: 1.4.	
	Rail	Population risk 1.0 LCF at Moab, 0.011 LCF at Klondike Flats during operations.	Population risk 1.0 LCF at Moab, $8.3 \times 10^{-3}$ LCF at Crescent Junction during operations.	N/A		
		Population risk $2.8 \times 10^{-3}$ LCF over 30 years at Klondike Flats after operations.	Population risk $2.0 \times 10^{-3}$ LCF over 30 years at Crescent Junction after operations.			
	Population risk of 0.014 LCF at Klondike Flats over 35 years, during operations and after operations.	Population risk of 0.010 LCF at Crescent Junction over 35 years, during operations and after operations.				

Table 2–32. Summary and Comparison of Impacts (continued)

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
HUMAN HEALTH (cont.)		Rail (cont.)	Maximally exposed individual member of the public $8.8 \times 10^{-3}$ LCF at Moab.  $1.8 \times 10^{-5}$ LCF at Klondike Flats during operations.  Maximally exposed individual member of the public $4.4 \times 10^{-6}$ LCF over 30 years at Klondike Flats after operations.  Individual risk of $2.2 \times 10^{-5}$ over 35 years at Klondike Flats, during operations and after operations.	Maximally exposed individual member of the public $8.8 \times 10^{-3}$ LCF at Moab.  $7.5 \times 10^{-5}$ LCF at Crescent Junction during operations.  Maximally exposed individual member of the public $1.8 \times 10^{-5}$ LCF over 30 years at Crescent Junction after operations.  Individual risk of $9.4 \times 10^{-5}$ over 35 years at Crescent Junction, during operations and after operations.	N/A	
			Construction-related fatalities among workers: 0.39 fatality.		N/A	
			Annual worker risk: 0.18 LCF per year.		N/A	
			Total worker risk: 0.85 LCF.		N/A	
			Total transportation fatalities from all sources: 0.23.	Total transportation fatalities from all sources: 0.33.	N/A	

Table 2–32. Summary and Comparison of Impacts (continued)

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
HUMAN HEALTH (cont.)		Pipeline	Population risk 0.74 LCF at Moab, 0.011 LCF at Klondike Flats during operations.  Population risk $2.8 \times 10^{-3}$ LCF over 30 years at Klondike Flats after operations.  Population risk of 0.014 LCF at Klondike Flats over 35 years, during operations and after operations.	Population risk 0.74 LCF at Moab, $8.3 \times 10^{-3}$ LCF at Crescent Junction during operations.  Population risk $2.0 \times 10^{-3}$ LCF over 30 years at Crescent Junction after operations.  Population risk of 0.010 LCF at Crescent Junction over 35 years, during operations and after operations.	Population risk 0.74 LCF at Moab, 0.012 LCF at White Mesa Mill during operations.  Population risk $3.0 \times 10^{-3}$ LCF over 30 years at White Mesa Mill after operations.  Population risk of 0.015 LCF at White Mesa over 35 years, during operations and after operations.	
			Maximally exposed individual member of the public $6.9 \times 10^{-3}$ LCF at Moab,  $1.8 \times 10^{-5}$ LCF at Klondike Flats during operations.  Maximally exposed individual member of the public $4.4 \times 10^{-6}$ LCF over 30 years at Klondike Flats after operations.  Individual risk of $2.2 \times 10^{-5}$ over 35 years at Klondike Flats, during operations and after operations.	Maximally exposed individual member of the public $6.9 \times 10^{-3}$ LCF at Moab,  $7.5 \times 10^{-5}$ LCF at Crescent Junction during operations.  Maximally exposed individual member of the public $1.8 \times 10^{-5}$ LCF over 30 years at Crescent Junction after operations.  Individual risk of $9.4 \times 10^{-5}$ over 35 years at Crescent Junction, during operations and after operations.	Maximally exposed individual member of the public $6.9 \times 10^{-3}$ LCF at Moab,  $7.8 \times 10^{-6}$ LCF at White Mesa Mill during operations.  Maximally exposed individual member of the public $1.9 \times 10^{-6}$ LCF over 30 years at White Mesa Mill after operations.  Individual risk of $9.7 \times 10^{-6}$ over 35 years at White Mesa, during operations and after operations.	

Table 2–32. Summary and Comparison of Impacts (continued)

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
HUMAN HEALTH (cont.)		Pipeline (cont.)	Construction- related fatalities among workers: 0.43 fatality.	Construction-related fatalities among workers: 0.47 fatality.	Construction- related fatalities among workers: 0.54 fatality.	
			Annual worker risk: 0.18 LCF per year.			
			Total worker risk: 0.85 LCF.			
			Total transportation fatalities from all sources: 0.086.	Total transportation fatalities from all sources: 0.048.	Total transportation fatalities from all sources: 0.067.	
TRAFFIC						
Estimated maximum increase in Average Annual Daily Traffic (AADT) (all vehicles) on US-191 from shipping contaminated materials.	2%  (Vicinity property material)	Truck	29%  (Tailings and vicinity property material)		10–29%  (Tailings and vicinity property material)  (Range reflects different AADT on US-191 segments between Moab and White Mesa Mill)	N/A
Estimated maximum increase in average annual daily truck traffic on US-191 from shipping contaminated materials.	6%  (Vicinity property material)		95%  (Tailings and vicinity property material)		65–186%  (Tailings and vicinity property material)  (Range reflects different AADT on US-191 segments between Moab and White Mesa Mill)	

Table 2–32. Summary and Comparison of Impacts (continued)

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
Estimated maximum increase in average annual daily truck traffic on US-191 from shipping borrow material (Increase shown for truck transport would also occur for rail and pipeline transport).	10%  (All borrow materials)		16%  (All borrow materials)	6%  (All borrow materials)	5%  (Sand, gravel and riprap shipment impacts to US-191 at White Mesa Mill.)  4%  (Moab reclamation soil impacts to US 191 north of Moab site)	
Estimated maximum increase in AADT (all vehicles) on US-191 in central Moab from commuting workers (Conservatively assumes all workers commute through central Moab).	1%		3%	4%	5%	
Estimated maximum percent increase in average annual daily truck traffic on US-191 in central Moab from shipments of contaminated materials.	7%  (Vicinity property material)		7%  (Vicinity property material)		127%  (Tailings and vicinity property material)	

Table 2-32. Summary and Comparison of Impacts (continued)

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
TRAFFIC (cont.)						
Estimated maximum percent increase in average annual daily truck traffic on US-191 in central Moab from shipments of borrow materials (increase shown for truck transport would also occur for rail and pipeline transport).	2%  (Sand, gravel and riprap)	Truck (cont.)	3%  (Sand, gravel and riprap)		0%	
Estimated maximum increase in AADT (all vehicles) on US-191 from shipping contaminated materials.		Rail	2%  (Vicinity property material and oversize tailings debris)		N/A	
Estimated maximum increase in average annual daily truck traffic on US-191 from shipping contaminated materials.			7%  (Vicinity property material and oversize tailings debris)		N/A	
Estimated maximum increase in AADT (all vehicles) on US-191 in central Moab from commuting workers (conservatively assumes all workers commute through Moab).			3%		N/A	
Estimated maximum increase in average annual daily truck traffic on US-191 in central Moab from shipments of contaminated materials.			7%  (Vicinity property material)		N/A	
Estimated maximum increase in AADT (all vehicles) on US-191 from shipping contaminated materials.		Pipeline	2%  (Vicinity property material and oversize tailings debris)			

Table 2–32. Summary and Comparison of Impacts (continued)

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
TRAFFIC (cont.)						
Estimated maximum increase in average annual daily truck traffic on US-191 from shipping contaminated materials.		Pipeline (cont.)	7%  (Vicinity property material and oversize tailings debris)			
Estimated maximum increase in AADT (all vehicles) on US-191 in central Moab from commuting workers (conservatively assumes all workers commute through Moab).			3%			
Estimated maximum increase in average annual daily truck traffic on US-191 in central Moab from shipments of contaminated materials.			7%  (Vicinity property material)		7%  (Vicinity property material and oversize tailings debris)	



Table 2–32. Summary and Comparison of Impacts (continued)

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
<b>ENVIRONMENTAL JUSTICE</b>	No potential for disproportionately high and adverse impacts to minority or low-income populations.	N/A	No potential for disproportionately high and adverse impacts to minority or low-income populations.			No potential for disproportionately high and adverse impacts to minority or low-income populations.
					Disproportionately high and adverse impacts to minority and low-income populations would occur under this alternative as a result of unavoidable adverse impacts on potential traditional cultural properties located on and near the White Mesa Mill site, the proposed White Mesa Mill pipeline route, White Mesa Mill borrow area, and Blanding borrow area.	

Table 2–32. Summary and Comparison of Impacts (continued)

CATEGORY	ON-SITE DISPOSAL AT THE MOAB SITE	OFF-SITE TRANSPORTATION MODE	OFF-SITE DISPOSAL ALTERNATIVES			NO ACTION ALTERNATIVE
			KLONDIKE FLATS	CRESCENT JUNCTION	WHITE MESA MILL	
ACCIDENT CONDITIONS						
DISPOSAL CELL FAILURE	Some human health risk under the residential scenario.	N/A	Site is not located on a river, does not have historical seismic activity, and is not prone to settling. Site is located away from population centers and sensitive habitats. Possibility of a failure occurring and having adverse consequences is much lower than at the Moab site.			The possibility and consequences of tailings pile failure would be the greatest under this alternative.
	Negative impacts to aquatic receptors from uranium and ammonia concentrations in Colorado River.					Negative impacts to aquatic receptors from uranium and ammonia concentrations in Colorado River.
TRANSPORTATION ACCIDENTS INVOLVING RRM	N/A	Truck	Maximally exposed individual $6.8 \times 10^{-8}$ LCF, accident probability 0.06 per year.	Maximally exposed individual $6.8 \times 10^{-8}$ LCF, accident probability 0.1 per year.	Maximally exposed individual $6 \times 10^{-8}$ LCF, accident probability 0.3 per year.	N/A
			Population risk: $7.9 \times 10^{-7}$ LCF if in a populated area; $1.2 \times 10^{-9}$ LCF if in a rural area; accident probability 0.06 per year.	Population risk: $7.9 \times 10^{-7}$ LCF if in a populated area; $1.2 \times 10^{-9}$ LCF if in a rural area; accident probability 0.1 per year.	Population risk: $7.9 \times 10^{-7}$ LCF if in a populated area; $1.2 \times 10^{-9}$ LCF if in a rural area; accident probability 0.3 per year.	
		Rail	Maximally exposed individual $6.1 \times 10^{-7}$ LCF, accident probability 0.3 per year.	Maximally exposed individual $6.1 \times 10^{-7}$ LCF, accident probability 0.5 per year.	N/A	
			Population risk: $7.5 \times 10^{-6}$ LCF if in a populated area; $1.2 \times 10^{-8}$ LCF if in a rural area; accident probability 0.3 per year.	Population risk: $7.5 \times 10^{-6}$ LCF if in a populated area; $1.2 \times 10^{-8}$ LCF if in a rural area; accident probability 0.5 per year.		